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Let's Talk About It: More Rate Reductions

[The following article is not subject to editorial review.]

Well, gentle reader, if you thought our recent announcement of rate reductions was something, listen to this! We're reducing our rates again on the VM/CMS system. Changes in the rates are listed in the table below. In summary, we have lowered the CMS rates to 80 percent of their old value. We are now lowering them again to 50 percent of their old value for CPU and IOUSE, with lesser reductions for disk storage and connect charges. These last two are components where the charges include some coverage of capital costs and hence where increased demand is expected to fund increased facilities. In my article in the September issue, I talked about 50 and 100 percent credits for subsequent computing once the same amount of money is spent as was spent last year. The arrangements will still hold, though with these new rates they may be less relevant.

You may well ask why we haven't favoured the MVS side with an equivalent amount of reductions. There are at least two reasons. The first is that even if the use of the system is price inelastic (or is that elastic? I always get the two mixed up, what I mean is that if people will just do the same amount of computing and pocket the savings), then there is less of a potential loss on the CMS side. We had the impression that there was never enough money to purchase the amount of computing that people needed to do, but we will certainly see if that is the case now. The second reason is that we are trying to encourage use of the CMS system until it becomes our primary academic service. Pricing is not a bad way (we hope) to encourage that.

We still welcome those with instructional needs to discuss special arrangements with us.

RATE REDUCTIONS

			September 1	
		New Rate	**Rate**	**Old Rate**
VM/CMS	CPU-$/minute	3.00	4.75	6.00
	Connect-$/hour	.60	.80	1.00
	Temp disk-$/cyl/hour	.06	.07	.09
	IOUSE-$/1000	.15	.25	.30
	Online storage-$/cyl/day	.18	.20	.26

Warren Jackson
WCJ at UTORONTO

Announcing UTCS PostScript Printing

In January 1985 Apple Corporation, in conjunction with Adobe Systems Inc., announced the Apple LaserWriter. With this product, Apple initiated the race to make desktop publishing available to a very large community. Apple has been so successful in this that Jonathan Seybold recently stated in *The Seybold Report on Desktop Publishing,* "Up until now, 'Desktop publishing' has really meant an Apple Macintosh with Macintosh word-processing and graphics software, [and] an Apple LaserWriter printer ...." Central in the desktop-publishing world is **PostScript**, the language that the Apple LaserWriter understands and that gives the laser printer its high standards for quality and flexibility.

Since the advent of the LaserWriter, other companies have made arrangements with Adobe Systems (the company that developed PostScript) to release printers that also use PostScript. In addition, programs that produce PostScript code are available not only for the Macintosh, but also for the IBM PC, and on UNIX and IBM mainframe systems.

UTCS has been watching the development of PostScript since the announcement of the Apple LaserWriter in 1985 and is now in the process of acquiring both PostScript **laser printers** and a very high quality Linotronic 100 PostScript **typesetter**. We intend to make the laser printers and the typesetter available to University UNIX and CMS mainframe users, and to Macintosh and IBM PC micro users. Initially, service will be limited to online, automated access via UTCS' GP UNIX machine, and to access by micro users willing to pay cash for output. Plans are being worked out to extend this service to U of T CMS users. We hope to improve service for micro users as well.

With proper software, these printers can readily produce high quality documents combining text and graphics and a variety of type styles and sizes. It is central to the design philosophy of PostScript that output from *all* PostScript devices be *identical* insofar as the resolution of the output device allows. Thus, we believe that you will be able to print high quality, inexpensive, proof copy on the laser printers and be assured that the same PostScript description will produce identical output (except for the improved quality) on the Linotronic 100 typesetter. Indeed, the output of the laser printer may even be good enough for many publishing applications! Only when true typeset quality is required will output on the more expensive Linotronic typesetter be needed.

Cost of Using PostScript Printers

UTCS will offer printing on the laser printers and the typesetter based mainly (but not solely) on the cost of materials. Charging will consist of two parts for the laser printers and three for the typsetter:

- A per-job charge (for the typesetter only).
- A charge per unit of output (page for laser printers, inch for typesetter).
- A charge based on the amount of time it takes for the output device to process the output. (This is derived from PostScript's **usertime** construct.)

Unfortunately, it is possible for someone to generate a small PostScript file that ties up the printer for hours, though printing only one page. This type of PostScript file is *not* generated by application programs such as UNIX's *troff*, Microsoft Word, or by the Apple Macintosh. However, such files have been created specifically to demonstrate exotic PostScript capabilities and are often found on various networks and bulletin board systems. The principal purpose of the processing-time charge is to make sure that users pay more for jobs that produce small amounts of actual output but that tie up the printer for an unusually long

continued...

PostScript Printing continued

time. Clearly, it is in the interest of all users that this type of request be charged more to reflect the disproportionate use of the scarce resource. However, the rate will be set so that someone using an "average" amount of time to print a page is not penalized. UTCS will monitor printing on these devices to ensure that most users are not unduly delayed while waiting for some unusually slow output request to be processed.

UTCS plans to use PostScript laser printers developed by Texas Instruments. Supplies for these are substantially cheaper than those used in printers built around the Canon print engine (like the Apple LaserWriter). Hence, our rates for a PostScript laser printer will be lower than those generally available from the LaserWriter. The TI-printer rates will be:

- 6 cents per page of output, plus
- 20 cents per minute of laser-printer processing time.

We expect that the combined cost on the TI printers will be about seven to nine cents per page for most pages containing mainly text. Those using the Apple LaserWriter could expect to pay about 11 to 15 cents per page.

For the Linotronic 100 PostScript typesetter, the charges will be:

- 2 dollars per job, plus
- 20 cents per vertical inch of output paper (charged in tenths of an inch), plus
- 20 cents per minute of typesetter printer processing time.

In addition to the per-job charge, the cost for most pages containing mainly text is expected to be in the order of $2.50 to $3.50 per page. We believe that this cost is competitive with the cost of true typeset output on photographic paper from other typesetting firms.

The arrival of the laser printers and typesetter is only the beginning of what we hope will be an evolving and improving service. I am eager to hear your thoughts about it. If you have any comments, please call me at 978-3995.

John Bradley
BRADLEY at UTORONTO

The Apple LaserWriter Desktop Laser Printer

The Apple LaserWriter is a small desktop laser printer capable of printing up to eight pages per minute of very high quality text and graphics. It comes with four built-in character sets or fonts: Helvetica, Times, Courier, and Symbol. The first three are also available in bold and italic forms.

The Apple LaserWriter can use PostScript, a programming language that determines the way text and graphics are laid out on a page. A powerful feature of PostScript is the ability to scale the built-in fonts; you can have characters of virtually any size, whereas with most other printers you must buy a particular size of a particular font. PostScript fonts are described by their outline instead of a pattern of dots. You can perform mathematical operations to scale the fonts. You can also perform complex transformations to make a variety of characters that look quite different from the original characters in the font.

Most people are aware that the Apple LaserWriter is very compatible with the Apple Macintosh, but most people *don't* know that more and more software packages available for the IBM PC family can also drive the Apple LaserWriter.

In the simplest form, the Apple LaserWriter connected to an IBM PC can act like a Diablo 630 daisy wheel printer and produce

continued...

Apple LaserWriter continued

good quality print. Almost *every* word-processing package available today can print on the Diablo 630, and an increasing number can support the Apple LaserWriter connected to the IBM PC as a PostScript laser printer. In this way you can take full advantage of the capabilities of the printer. Microsoft Word, FinalWord II, Clickart Personal Publisher, Gem Write, PC and Micro TEX, Hockney's Egg, and Scenic Writer are some of the IBM PC packages that currently support PostScript laser printers. WordPerfect and WordStar 2000 Plus are developing support for PostScript printers.

The Apple LaserWriter is just one of a family of PostScript printers; about 27 different PostScript laser printers are available. Most if not all will connect directly to the Macintosh and IBM PC in the same way as the Apple LaserWriter. The Linotronic 100 typesetter is a PostScript typesetter. UTCS has just acquired a Linotronic 100 typesetter. Any output printable on a PostScript printer such as the LaserWriter can just as easily be sent to the typesetter *without change* to produce true typeset output. (For information on PostScript printing at UTCS, see the preceding article.)

It is worth your while to look into the high quality output devices that are becoming available, and I think PostScript devices are worth a *long* look. They are here. They are capable. Contact me at 978-4924 for more information.

Terry Jones
TJ at UTORONTO

Paying Cash for MICRO LASER PRINTING

The Micro Laser Printing Service has proven very popular. Micro users can bring in a floppy disk containing printer-ready copy of a document and print it on UTCS' Xerox 8700 Laser Printer.

UTCS has now made the process much easier for small or one-time users of the service. It is no longer necessary to set up an account beforehand to use the service; now, you can pay cash for output. The cost is 15 cents per page for the first copy and 5 cents per page for subsequent copies requested at the same time. Moreover, we have Bell-Fast Bond high quality paper available for an additional 1.5 cents per page.

The print quality is high, the cost is low, and it is easier than ever to get started now!

For more information, contact Vera Petrashkewych at 978-6050.

Terry Jones
TJ at UTORONTO

MICRO LASER PRINTING

Users of :

- MICROSOFT WORD
- WORDPERFECT
- WORDSTAR
- FINALWORD II
- MULTIMATE
- PC-WRITE
- NOTA BENE
- SYMPHONY

can get high quality laser output without buying their own laser printer.

Use ours!

It's easy. Just format your document as if you were going to print it on a DIABLO 630 printer. Save the formatted version on a floppy diskette(s). Bring the diskette(s) to UTCS Offices in the Koffler Student Centre, Room 308, Monday to Friday, 10:00 am to 5:00 pm.

First copy.	$0.15/page
2nd and subsequent copies. . . .	$0.05/page
BELL-FAST bond paper, add. . .	$0.01/page

Payment in cash or on your CMS account.

For further information, call 978-HELP.

PC-DOS Tip: Finding Misplaced Files

On a large hard disk, it is easy to lose a file when you have many files in many subdirectories. To find out where a particular file is, you can use two standard DOS commands, CHKDSK and FIND. CHKDSK with the /V option will display the directory and filename of each file; FIND will display any line containing a particular character string.

First, use CHKDSK with the /F option to clean up your disk. (Look at your DOS manual for an explanation of this.) Then, to find all the files and directories containing a particular character string (FRED, in this example), use the command:

```
chkdsk/v | find “FRED”
```

Note that you should use only upper-case letters in the string, because CHKDSK/V output is upper-case and FIND is case sensitive.

The output from the command will list all files and directories containing the string “FRED”.

Try it.

Terry Jones
TJ at UTORONTO

ProComm Communications Program Seminar

This seminar, which is offered once a week, is intended to introduce ProComm, a general purpose communications program. Currently available as a shareware product on the Bulletin Board System (BBS), ProComm is the resident communications program in the Education Facility.

Topics Include: Terminal emulation (a number of popular ones will be reviewed); the dialing directory; file transfer protocals, such as Kermit and XMODEM; command files to control automatic logon and unattended operation; and the DOS gateway, which allows you to execute DOS commands or other programs while you're still online.

Copies of ProComm will be made at no charge, but you must bring your own diskette.

To register, please phone Irene Rosiecki at 978-4565.

Irene Rosiecki
ROSIECKI at UTORONTO

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UNIVERSITY OF TORONTO COMPUTING SERVICES
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Christmas and New Year's hours of service will be annouced via system Broadcast and HOTNEWS messages closer to the Christmas period.

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Central Advising Office Move

The Central Advising Office has moved again, though only a little way. Still in Room 308 of the Koffler Centre, we are now closer to the front door and the Microcomputer Lab. In this way, the Advising Office has better access to the many facilities available in the Micro Lab. We can also assist you with services such as the Micro Laser Printing Service and the Apple LaserWriter. We are looking forward to serving you better from our "new home."

Roni Moravan
RONI at UTORONTO

2400-Baud Modems

For several years, UTCS customers have been able to access their computer accounts over telephone lines by using 300- or 1200-baud modems. With the advent of affordable 2400-baud modems, people have been asking for 2400-baud access as well. In response to these requests, UTCS has purchased a number of 2400-baud modems, and is now testing them. Users with 2400-baud modems will be able to access our services at that baud rate sometime in late November or December. For information about the telephone number and the actual date, please phone Advising Services at 978-HELP near the end of November.

Roni Moravan
RONI at UTORONTO

Subscription Renewals

It is now time for *ComputerNews* readers to renew their subscriptions. Because all subscriptions run from January to January, even new users, who become subscribers automatically when they open their accounts, must renew at this time if they wish to continue receiving *ComputerNews.*

To renew, just fill out the *ANNUAL COMPUTERNEWS SUBSCRIPTION RENEWAL FORM* accompanying this page. Any subscription not renewed by the beginning of January will be dropped.

Please remember that this policy helps us keep down our mailing costs and thus provide the newsletter free of charge.

Martha Parrott
PARROTT at UTORONTO

Change Committee

Changes to the IBM Academic MVS Machine Services

1. The Job Description Library (JDL) on the 8700 laser printer was changed to include extraction of the reportname (September 24).
2. The daily operation of APRIL was segmented into two separate streams — UTCS and CLSC (September 9).

continued...

Change Committee continued

Changes to Academic VM/CMS Machine Services

1. SAS 5.15 testing by UTCS was begun (September 19).
2. An upgrade was done to the Accounting Office tools to set up CLSC VM/CMS userids (September 25).

Changes to Other Systems and Services

1. The CRAY X-MP/22 supercomputer system was installed (September 15).
2. The Accounting Office tools for setting up Cray SACs was installed (September 30).

Beverly Scarborough
BEVS at UTORONTO

Personnel Changes

Alicia Damley, who worked part-time as an Advisor in the Advising Office, has accepted a full-time position there as a Consultant.

Geoffrey Collyer, UNIX Systems Programmer, has left UTCS after 5 years.

Paul Kern, UTCS' programmer from Scarborough College, has joined the Department of Computer Science.

UTCS Noncredit Short Courses

Many people are finding that their involvement with computers and information processing systems is increasing. To help you get started, a number of short courses are offered on the various products and services supported by UTCS, and available on our systems. Enrollment in these courses is restricted to faculty, staff, and other users of our systems.

Enrollment in the two microcomputer courses (WRDPERF101 and WRDPERF301) is restricted to faculty, graduate students, staff, and researchers.

Registration is required for short courses due to the limited seating capacity in the Education Facility, and the number of terminals available for our hands-on courses. Registration forms may be picked up in the Engineering Annex, 11 King's College Road, Room 207.

A $10.00 Administration Fee, per course, is payable at the time of registration either by cash, cheque, or on a Customer Account Number (CAN). In addition, the CAN holder is responsible for any computer charges incurred during the hands-on courses.

The following courses are scheduled for December:

WRDPERF101 - Introduction to WordPerfect
Date: December 1-5, 1986
Time: 9:00-12:00 noon (December 1)
9:00-11:00 a.m. (December 2-5)

WRDPERF301 - Advanced WordPerfect Topics
Date: December 8-12, 1986
Time: 9:00-11:00 a.m.

A handout describing all of our short courses is available in the Information Office, Engineering Annex, Room 206.

Irene Rosiecki
ROSIECKI at UTORONTO

Introductory Cray Training

Two noncredit short courses, CRAY101 "Introductory COS and FORTRAN" and CRAY102 "Efficient Use of the System," are being offered to introduce experienced FORTRAN users to running jobs on the CRAY X-MP. Each course consists of five two-hour segments.

At present, each course carries a $5 materials fee. Participants must have the necessary CLSC computer accounts before they register. (To open accounts, please contact CLSC User Services, McLennan Physical Labs, Room 345.) All participants are required to register, since enrollment is limited to ten.

Course Descriptions

CRAY101 - Introductory COS and FORTRAN

This hands-on course will focus on skills required to run jobs on the X-MP without using permanent mass storage on the X-MP.

Topics: front-end station usage; COS job control language; Cray datasets; features of CFT and CFT77 FORTRAN compilers; and staging data from front-end computers.

Prerequisite: FORTRAN and a good working knowledge of editing and file management on a front-end computer.

CRAY102 - Efficient Use of the System

This hands-on course will introduce some of the skills required to make efficient use of the X-MP.

Topics: vectorization on the Cray; the use of system libraries; FORTRAN optimization techniques; how and when to use the solid-state storage device; and the use of magnetic tapes on the X-MP.

Prerequisite: CRAY101 or equivalent experience.

Course Registration

To register for either course please call Irene Rosiecki at 978-4565.

Irene Rosiecki
ROSIECKI at UTORONTO

Recent Acquisitions in Computer Library

Association for Computing Machinery. *Graduate assistantship directory in the computer sciences 1986-1987.* New York, ACM, 1986. 149 p.

Atkinson, Kendall E. *Elementary numerical analysis.* New York, Wiley, 1985. 416 p.

Bjorner, Dines, and C.B. Jones, ed. *The Vienna development method: the meta-language.* Berlin, Springer-Verlag, 1978. 382 p.

Bolc, Leonard and Z. Kulpa, ed. *Digital image processing systems.* Berlin, Springer-Verlag, 1981. 353 p.

Branquart, Paul et al. *An analytical description of CHILL, the CCITT high level language.* Berlin, Springer-Verlag, 1982. 277 p.

Casanova, Marco Antonio. *The concurrency control problem for database systems.* Berlin, Springer-Verlag, 1981. 175 p.

Chaghaghi, Francois, S. *Time series package (TSPACK).* Berlin, Springer-Verlag, 1985. 305 p.

Chang, Shi Kuo and K.S. Fu. *Pictorial information systems.* Berlin, Springer-Verlag, 1980. 445 p.

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Computer Library continued

Charniak, Eugene, C.K. Riesbeck and D.V. McDermott. *Artificial intelligence programming.* Hillsdale, N.J., Lawrence Erlbaum Assoc., 1980. 323 p.

Claus, Volker et al, eds. *Graph-grammars and the applications to computer science and biology.* Berlin, Springer-Verlag, 1979. 477 p.

Colloquium on Trees in Algebra and Programming (CAAP). *Proceedings.* Berlin, Springer-Verlag. Library has: 6th(1981), 8th(1983), 10th(1985).

Cryer, Colin W. *Numerical functional analysis.* New York, Oxford University Press, 1982. 151 p.

Doberkat, Ernst-Erich. *Stochastic automata: stability, nondeterminism and prediction.* Berlin, Springer-Verlag, 1981. 135 p.

EUROCAM'82, European Computer Algebra Conference, Marseille, France, April 1982. *Computer algebra.* ed. by J. Calmet. Berlin, Springer-Verlag, 1982. 301 p.

GI Symposim on Theoretical Computer Science. *Theoretical computer science.* Berlin, Springer-Verlag. Library has: 3d(1977), 6th(1983).

International ACM SIGIR Conference on Research and Development in Information Retrieval, 8th, Montreal, June 1985. *Proceedings.* New York, ACM, 1985. 288 p.

International Joint Conference on Theory and Practice of Software Development (TAPSOFT), Berlin, March 1985. *Proceedings.* ed. by H. Ehrig et al. Berlin, Springer-Verlag, 1985. 2v.

Jones, Neil D. and S.S. Muchnick, *TEMPO a unified treatment of binding time and parameter passing concepts in programming languages.* Berlin, Springer-Verlag, 1978. 118 p.

Katevenis, Manolis G.H. *Reduced instruction set computer architectures for VLSI.* Cambridge, Mass., MIT Press, 1985. 215 p.

Kobayashi, Koji. *Computers and communications: a vision of C & C.* Cambridge, Mass., MIT Press, 1986. 190 p.

Korth, Henry F. and A. Silberschatz. *Database system concepts.* New York, McGraw-Hill, 1986. 546 p.

Logic of Programs Workshop ETH, Zurich, 1979. *Proceedings.* ed. by E. Engeler. Berlin, Springer-Verlag, 1981. 245 p.

Logics of Programs. *Proceedings.* Berlin, Springer-Verlag. Library has: 1981, 1983, 1985.

Logics of Programs and Their Applications, Poznan, Poland, August 1980. *Proceedings.* ed. by A. Salwicki. Berlin, Springer-Verlag, 1983. 324 p.

Manx Software Systems, Inc. *Aztec C for the Macintosh* (version 1.06) Shrewsbury, N.J. March 1986.

Manx Software Systems, Inc. *Aztec C68K for the Amiga (version 3.2).* Shrewsbury, N.J., 1986.

Marlin, Christopher D. *Coroutines: a programming methodology, a language design and an implementation.* Berlin, Springer-Verlag, 1980. 246 p.

Nijholt, Anton. *Context-free grammars: covers, normal forms and parsing.* Berlin, Springer-Verlag, 1980. 253 p.

Nivat, M. and D. Perrin ed. *Automata on infinite words.* Berlin, Springer-Verlag, 1985. 215 p.

continued...

Computer Library continued

Noltemeirer, Harmut, ed. *Graphtheoretic concepts in computer science.* Berlin, Springer-Verlag, 1981. 403 p.

Osaki, Shunji. *Reliability evaluation of some fault-tolerant computer architectures.* Berlin, Springer-Verlag, 1980. 129 p.

Piloty, Robert et al. *CONLAN report.* Berlin, Springer-Verlag, 1983. 174 p.

Rall, Louis B. *Automatic differentiation: techniques and applications.* Berlin, Springer-Verlag, 1981. 165 p.

Rembold, Ulrich and R. Dillmann, ed. *Methods and tools for computer integrated manufacturing.* Berlin, Springer-Verlag, 1984. 528 p.

Rubinstein, Richard. *The human factor: designing computer systems for people.* Bedford, Mass., Digital Press, 1984. 249 p.

Schwartz, Mischa. *Telecommunications networks: protocols, modeling and analysis.* Reading, Mass., Addison-Wesley, 1987. 749 p.

Shneiderman, Ben. *Designing the users interface: strategies for effective human-computer interaction.* Reading, Mass., Addison-Wesley, 1987. 448 p.

Smith, T. Basil et al. *The fault-tolerant multiprocessor computer.* Park Ridge, N.J., Noyes Publications, 1986. 782 p.

Symposium on Theoretical Aspects of Computer Science. STACS. Berlin, Springer-Verlag. Library has 1st(STACS 84), 2d.

Wood, Derick. *Grammar and L forms: an introduction.* Berlin, Springer-Verlag, 1980. 314 p.

Zemanek, Heinz, ed. *A quarter century of IFIP: the IFIP silver summary.* Amsterdam, North-Holland, 1986. 117 p.

Stephanie Johnston

Documents at UTCS

All vendor-produced documentation may be ordered through the UTCS Information Office, Room 206, Engineering Annex. UTCS documents and selected vendor documents are also stocked there for purchase. For more information on prices, call Dale Wright at 978-4990. Whenever feasible, documents are made available online, and users areencouraged to print their own copies. On the MVS and VM machines, special commands have been provided for this purpose.

To print online documents on:

IBM MVS
WYLBUR users type "do document?"
TSO users type "help document"
APL users type ")LOAD 1 UTCSGUIDE<RETURN>HELP"

IBM VM/CMS
type "help document"

GP UNIX
use *ipr* command

See examples at the end of next page.

UTCS Documents in hardcopy

New:

Previously announced:

Academic's Guide to Microcomputer Systems
Character Sets for Highspeed Printing
UTCS GUIDE TO PRODUCTS AND SERVICES: Introduction
UTCS GUIDE TO PRODUCTS AND SERVICES: Basics
UTCS GUIDE TO PRODUCTS AND SERVICES: Accounting
UTCS Catalogue: Access, Part 1
UTCS Catalogue: Access, Part 2
UTCS Catalogue: IBM MVS Utilities
UTCS Catalogue: Numerical Products
UTCS Catalogue: Statistics Products
UTCS Catalogue: Text Products
UTCS Guide to Census Tapes
UTCS Guide to Tape Usage on VM/CMS
UTCS Guide to Kermit
UTCS Guide to Micro File Transfer Service
UTCS Guide to Text Processing on GP UNIX

UTCS Documents online	**MVS MANUAL**	**CMS LISTING**	**GP UNIX**	**Forms Code**
New:				
Previously announced:				
UTCS GUIDE TO PRODUCTS AND SERVICES: Introduction	INTRO	INTRO	/usr/doc/utcs/intro	*
UTCS GUIDE TO PRODUCTS AND SERVICES: Basics	BASICS	BASICS	/usr/doc/utcs/basics	*
UTCS Catalogue: Access, Part 1	ACCESS1	ACCESS1	/usr/doc/utcs/access1	*
UTCS Catalogue: Access, Part 2	ACCESS2		/usr/doc/utcs/access2	*
UTCS Catalogue: IBM MVS Utilities	MVSUTIL	MVSUTIL		*
Product-Function List	UTILLIST	UTILLIST		BXQD
UTCS Catalogue: Numerical Products	NUMCAT	NUMCAT		*
Product-Function List	NUMLIST	NUMLIST		BXQD
UTCS Catalogue: Statistics Products	STATCAT	STATCAT		*
Product-Function List	STATLIST	STATLIST		BXQD
UTCS Catalogue: Text Products	TEXTCAT	TEXTCAT	/usr/doc/utcs/textcat	*
UTCS Guide to APL	APLGD			*
UTCS Guide to APLXFR	APLXFR			*
UTCS Guide to BMDP	BMDP	BMDP		*
UTCS Guide to Census Tapes	CENSUS	CENSUS	/usr/doc/utcs/census	*
UTCS Guide to GP UNIX			/usr/doc/utcs/gpunix	*
UTCS Guide to GPJS	GPJSX	GPJSX	/usr/doc/utcs/gpjs	*
UTCS Guide to Highspeed Printing	PRINT	PRINT	/usr/doc/utcs/print	*
UTCS Guide to IBM MVS Online Storage	IBMDISK	IBMDISK		*
UTCS Guide to Kermit	KERMIT	KERMIT	/usr/doc/utcs/kermit	*
UTCS Guide to Micro File Transfer Service	MICROXFR	MICROXFR		*
UTCS Guide to Micro Laser Printing	MICRLASR	MICRLASR		*
UTCS Guide to SAS	SAS	SAS		*
UTCS Guide to SCRIBE		SCRIBE	/usr/doc/utcs/scribeguide	*
(For printing instructions, see page 1 of document)				
** Recommended forms code for the 8700 is YXLE unless otherwise stated.* *‡ Use the 87SET command. Type "help 87set".*				

Documents at UTCS continued

UTCS Documents online	**MVS MANUAL**	**CMS LISTING**	**GP UNIX**	**Forms Code**
UTCS Guide to Series/1 Terminal Use	SERIES	SERIES		*
3270 Emulation:				
Cybernex APL100 and Volker Craig VC404	CYBER	CYBER		*
DM1520	DM1520	DM1520		*
Hardcopy Terminal	HARDCOPY	HARDCOPY		*
IBM 3101	IBM3101	IBM3101		*
IBM PC Kermit	PCKERMIT	PCKERMIT		*
SOROC IQ	SOROC	SOROC		*
VT52	VT52	VT52		*
VT100	VT100	VT100		*
UTCS Guide to SPSS	SPSS	SPSS		*
UTCS Guide to SUBUTILS	SUBUTILS	SUBUTILS		*
UTCS Guide to Tape Usage on VM/CMS		CMSTAPE		*
UTCS Guide to Text Processing on GP UNIX			/usr/doc/utcs/text	*
UTCS Guide to TFW.MAK in SCRIBE		TFWMAK	/usr/doc/utcs/tfwguide	*
UTCS Guide to TSO	TSOGD			*
UTCS Guide to UTDSUTIL	UTDSUTIL	UTDSUTIL		*
UTCS Guide to VM/CMS	CMSGD	CMSGD		*
UTCS Guide to WYLBUR	WYLINTRO			*
UTCS Rate Schedule (Commercial)		RATESCOM		‡
UTCS Rate Schedule (External)		RATESEXT		‡
UTCS Rate Schedule (Internal)		RATESINT		‡
UTCS WYLBUR Tutorial	WYLTUTOR			*
Other Documentation online:				
CLSC Documents				
CLSC Guide to Computing on the CRAY from the VM/CMS Front End		CRAYGD		*
Kermit				
Kermit Protocol Manual	KERMITPM	KERMITPM		YXOE
Kermit User Guide	KERMITUG	KERMITUG		YXOF
VM Tape Documents				
TapeMap User's Guide and Reference		TAPEMAP		*
VMTAPE Messages and Codes		VMTMSGS		YXOE
VMTAPE User's Guide		VMTUSER		YXOE
VMSECURE				
VMSECURE User's Guide		VMSECURE		YXOE
Waterloo SCRIPT				
Reference Manual	WSCRPTRF	WSCRPTRF		YXLC
User's Guide	WSCRPTUG	WSCRPTUG		YXLC
GML USER'S Guide	GMLUG	GMLUG		YXLC
OBS WYLBUR				
Messages and Codes	WYLMSGS			YXLD
Qwik Files	WYLQWIK			YXLD
Reference Summary	WYLREFCD			YXLG
Reference Manual	WYLREFMN			YXLD
7.0 Release Guide	WYLREL70			YXLC
User Guide	WYLUSER			YXLD

In these examples, the document to be printed is the UTCS Guide to Census Tapes (MANUAL/LISTING=CENSUS).
<RETURN> means RETURN or ENTER key.

TSO: document census forms(yxle) <RETURN>

WYLBUR: do document <RETURN> and respond to the prompts.

CMS: document <RETURN> <RETURN>
laser census listing (forms yxle <RETURN>

GP UNIX: nohup ipr -8p -fyxle /usr/doc/utcs/census & <RETURN>

* *Recommended forms code for the 8700 is YXLE unless otherwise stated.*
‡ *Use the 87set command. Type "help 87set".*

Consulting and Enquiries

Applications Support & Advising Supervisor	Alex Nishri	KC308	978-7109
External Marketing Consultant	Ihor Prociuk	KC308	978-6875
Erindale College	Joe Lim	ER2035	828-5311
Scarborough College	William Barek	SC626	284-3173
Information Office	Dale Wright	EA206	978-4990
Account & Access Code Enquiries (U of T)	Agatha Stevens	MP337	978-8703
Account & Access Code Enquiries (External)	Sylvia May	MP337	978-7148
IBM PC Maintenance	Kam Mark	SF4306	978-5050
Tape Library (Academic Services)	Rosa Ciddio	MP368	978-7319
Tape Library (Administrative Services)	Miranda Fong	MP368	978-6693
Terminal Rentals	Louise Hunt	SF4306	978-3787
U of T Computer Library	Stephanie Johnston	EA206	978-2987
UTCS Noncredit Short Courses	Irene Rosiecki	EA207	978-4565

Consulting & Advising Services	
Phone:	978-HELP
CMS, TSO and GP UNIX userids:	ADVISOR
CMS Userid for mail problems:	POSTMSTR
Microcomputer Advising(MSG)	978-8701
Numerical/Statistical Advising(SNAC)	978-STAT
System Status Enquiries (GP UNIX)	978-4318
System Status Enquiries (IBM)	978-7393

300 Baud Interactive Services	978-6200
1200 Baud Interactive Services	978-3959
Datapac	4320 0056
Telnet	0302043200056
Tymnet	<backspace> DPAC;302043200056

UTCS Directory

Director	Dr. Warren Jackson	MP350	978-8948	WCJ at UTORONTO *
Associate Director	Eugene Siciunas	MP350	978-5058	EUGENE at UTORONTO *
Managers:				
Communications & Technical Support	Norman Housley	SF4306	978-4967	NORMAN at UTORONTO *
Internal Systems & Administration	Ron Vander Kraats	MP350	978-4428	RVK at UTORONTO *
Operations	Dr. Bob Chambers	MP350	978-7092	
Systems	Bill Lauriston	MP331	978-3579	BILL at UTORONTO *
User Interface	Don Gibson	KC308	978-7331	DON at UTORONTO *

Committees on Computing

Committee on Administrative Computing	Chair	Janice Oliver	978-4322	
UTCS Board	Chair	Prof. D.M. Nowlan	978-4984	NOWLAN at UTORONTO *
Supercomputer Users' Group at U of T	Chair	Prof. P.P. Kronberg	978-4971	

ER = Erindale
KC = Koffler Centre
SF = Sandford Fleming
SC = Scarborough
MP = McLennan Physical Labs

* NetNorth/BITNET/EARN

UTCS Terminal and Advising Sites

Names and Locations

- **Central Advising Office (CAO), 978-HELP**
- **Education Facility (Educ)**, Koffler Centre, 214 College St., Room 308.
- **Engineering Annex (EA, CDF)**,11 King's College Road, Rooms 103, 107, 107B, 201, 203.
- **Erindale College (Erin), 828-5339,** Mississauga Road, Erindale Campus, Rooms 2005, 2039, 2045
- **Robarts,** Robarts Library, 130 St. George St., Room 1061A
- **Scarborough College (Scar), 284-3122,** Military Trail, Scarborough Campus, Rooms S624, S625, S627, S628, S628A
- **Sidney Smith (Sidney)**, 100 St. George St., Rooms 1071, 1073, 2105
- **St.Michael's College,** 121 St. Joseph St., Room 107
- **Trinity College,** 6 Hoskins Ave., Room 024
- **Victoria University,** 73 Queens Park Cres.

Sites	**Hours of Access**				**Restrictions***	**Advising**
	Mon-Thurs	**Fri**	**Sat**	**Sun**		
CAO	10:00-18:00	10:00-18:00	closed	closed	Research	978-HELP
CDF	24 hrs	24 hrs	24 hrs	24 hrs	Undergrads	No
EA	24 hrs	24 hrs	24 hrs	24 hrs	None	978-HELP for Research
Educ	9:00-18:00	9:00-18:00	closed	closed	Research**	978-HELP
Erin (2039)□	9:00-17:00	9:00-17:00	12:00-16:00	12:00-16:00	Research	Rm 2005
(2045)	24 hrs	24 hrs	24 hrs	24 hrs	Undergrads	Rm 2005
(235†)	8:00-22:00	8:00-17:00	closed	closed	None	Rm 2046
Robarts	8:30-24:00	8:30-24:00	9:00-17:00	13:00-22:00	None	978-HELP for Research
Scar	24hrs°	24hrs°	24hrs°	24hrs°	Research Undergrads	Rm S626 Rm S626-A
Sidney	7:00-24:00	7:00-24:00	7:00-24:00	7:00-24:00	None	978-HELP for Research
St.Michael's	24 hrs	24 hrs	24 hrs	24 hrs	None	Arranged by College
Trinity	8:00-22:00	8:00-22:00	8:00-22:00	8:00-22:00	None	Arranged by College
Victoria	8:30-23:00	8:30-23:00	closed	closed	None	Arranged by College

* Research includes graduates, faculty, staff. ** May be unavailable due to UTCS courses. □ key access available.
° printers available some of the time. † access restricted to building hours.

Advising Hours

CAO	Monday through Friday, 10:00 - 18:00
Scarborough	Monday through Friday, 09:00 - 16:30, Wednesday and Friday 18:00 - 24:00, Saturday 10:00-17:00
Erin	Monday through Friday 09:00 - 22:00, Saturday & Sunday 12:00-16:00

Sites	**PACX**	**Network Terminal Server**	**CMS Terminals**	**Printers**	**DCS/Micros**
CDF	Y	N	N	Y	N
EA	N	Y	Y	Y	N
Educ	Y	N	N	N	N
Erin	Y	Y	N	Y	N
Robarts	Y	N	Y	Y	Y
Scar	Y	Y	N	Y	N
Sidney	N	Y	Y	Y	Y
St.Michael's	Y	N	N	Y	Y
Trinity	N	N	Y	Y	Y
Victoria	Y	N	N	Y	Y

(Y=yes, N=no)

UTCS Services

The principle mandate of UTCS is to plan, implement, and operate computer facilities and "common-carrier" networks, and to plan and support divisional, departmental or project computer facilities as requested.

UTCS Centrally Owned and Managed

Systems

IBM MVS

- TSO, WYLBUR,APL, Batch
- 4381-R03 processor, 32 megabytes of memory
- MVS operating system

IBM VM/CMS

- General Purpose Timesharing; access to NetNorth, BITNET, and EARN networks; access to Cray X-MP
- 4381-P02 processor, 16 megabytes of memory
- CP operating system, VM/SP HPO R3.4
  CMS timesharing system, VM/SP Release 3
  RSCS spooling system, Release 3
  CRAY station Release 4

GP UNIX
Technical Assistance: 978-8853

- General Purpose Timesharing under a commercial 4.2BSD UNIX license
- VAX-11/750, 5 megabytes of memory
- high-quality phototypesetting
- offers a sophisticated and powerful environment for text processing
- offers a sophisticated programming environment suitable for commercial software development or testing
- full access to USENET, an electronic technical information exchange facility
- offers excellent electronic mail facilities and ability to send or receive mail from most computer networks world wide, such as UUCPNET, ARPANET, NetNorth, BITNET, CSNET, CDNNET

Services

Communications & Technical Support
Primary Phones: 978-3787, 978-4967

- Communications Group provides communications systems, terminals, modems, data channels: consulting and installation.
- Field Service Group installs and maintains communications and computer systems, particularly IBM PCs and Micro Vaxes, on a contract basis or on a cost-per-call basis.
- provides consulting on computer systems technology and installs computer systems
- provides access between the IBM systems and machines using UNIX, VMS and other operating systems. Ethernet and Pronet technologies are used over various transmission media including optical fibre. More basic communications techniques are also used for moderate speed links.
- provides access to NetNorth (BITNET), the North American Universities Network; and USENET, the UNIX networking fraternity
- will provide a communications solution to department needs on a contractual basis.

User Interface Group
Primary Phone: 978-HELP

- provides advising, consulting and documentation on:
  - command languages including CMS, TSO, WYLBUR, JCL and UNIX
  - high level languages including FORTRAN, APL and PL/I
  - packages and libraries including SAS, SPSS-X, BMDP, IMSL and NAg
  - editors and formatters including XEDIT, TSO, WYLBUR, ed, SCRIBE, nroff/troff
- installs and maintains application packages
- provides courses on the more popular services
- provides general micro support
  - selection consulting for hardware and software
  - Micro Lab for evaluation of hardware and software
  - advice on University discounts
  - media conversion and data transfer
  - operates UTCS Microcomputer Bulletin Board System
  - offers Micro Laser Printing Service
  - offers 35mm slide production service using Polaroid Palette

Facilities Managed by UTCS

Administrative Computing

- administrative IMS/VS, DB/DC, DB2, Batch and TSO
- 4381-R03 processor, 32 megabytes of memory
- MVS operating system

UNIX SAS (Statistical Analysis Services)

- UNIX Statistical Analysis Service (Dept. of Statistics only)
- PDP-11/70, 4 megabytes of memory
- UNIX Seventh Edition
- SUN 3/180
- SUN 3/75
- SUN 2
- SUN 3.1 UNIX

Computer Disciplines Facility/VAX

VAX-11/780, 4 megabytes of memory
VAX-11/750, 4 megabytes of memory
VAX-11/750, 4 megabytes of memory

- Computer Science interactive access
- UNIX (Berkeley UNIX 4.2BSD)

Computer Disciplines Facility/PC

- 97 TI Professional Computers connected in a Local Area Network
- introductory Computer Science instruction
- MS-DOS with Turing environment

Scarborough College Systems

VAX-11/750, 5 megabytes of memory
VAX-11/750, 5 megabytes of memory

- instructional access using UNIX (Berkeley UNIX 4.2BSD)

Erindale College Systems

VAX 8200, 8 megabytes of memory

- instructional access using VMS
- research access

VAX-11/750, 5 megabytes of memory

- instructional access using UNIX (Berkeley UNIX 4.2BSD)

Institutional Relations System

VAX-11/750, 8 megabytes of memory

- database services to the owner departments using VMS

EPAS Facility

- 4361-5 processor, 16 megabytes of memory
- general VM/CMS services to the owner departments

Centre for Large Scale Computation (CLSC)

- Cray Research Inc. X-MP/22
- 2 processors, 2 megawords main memory
- solid state disk (SSD) with 16 megawords of storage
- COS 1.15 operating system
- VAX-11/750 + microVAX II providing VMS front end services
- VM front-end services provided by UTCS 4381-P02

Software List

Each programming language or package available at UTCS has a support level. In general, Class A Products receive full support, Class B limited support (as time and resources allow), Class C no active support. For complete details of UTCS product support policy, see the UTCS GUIDE TO PRODUCTS AND SERVICES:Introduction.

MVS SOFTWARE

MVS Package/ Compiler	Support Level	Version
Graphics Packages		
PLOTBASIC (FORTRAN)	A	
PLOTBASIC EXTENDED ROUTINES	A	
SAS/GRAPH	A	82.4; 5.08
SURFACE II	C	
ISPF/PDF	B	1
WYLBUR	A	7.0
Languages		
APL (Sharp)	A	May 83
ALGOLW (Stanford)	C	n/a
ASSEMBLER(F)	C	2.1
A.A.E.C. PASCAL	C	2.0
FORTRAN H EXT.	B	2.2.1
LISP	C	
MARKEXAM	C	
PL/C	C	
PL/I CHECKOUT COMPILER	B	1.3.0
PL/I OPT COMPILER	B	1.4.0; 1.5.0
SNOBOL 4	C	3.5
SPITBOL	C	
UTCS FORTRAN UTILITIES	B	
VS COBOL	C	2.4
VS FORTRAN	A	1.4.1
WATBOL	C	V3L2
WATFIV	B	
WPASCAL	C	(U of Waterloo/ West Valley Joint Community College Version)
Numerical Packages		
DYNAMO	B	4.07
EISPACK	C	4
FORMAC	C	
FUNPACK	C	
GPSS	A	Rel.1, Mod. Level 4
IMSL	A	9.2
LINPACK	C	
MINOS	C	4.0
MINPACK	C	1
MPSX	C	Rel. 1, Mod. Level 6
NAg	A	Mark 11
Statistical Packages		
BMD	C	
BMDP	A	Level 85
GENSTAT	C	4.04B
IMSL	A	9.2
NAg	A	Mark 11
NTSYS	C	Dec. 1982
SAS	A	82.4; 5.08; 5.15
SPSS	C	9.1
SPSSX	A	2.1
TSP	C	3.5
Text-Processing Packages		
COGS(Concordance Generating System)	B	3.1
KWIC	C	
OCP (Oxford Concordance Program)	C	1.4
Waterloo SCRIPT	B	85.1
Utilities		
DSMAP	A	
FILEBOL	C	
GRIPE	A	
IBM UTILITIES		
IEBGENER	A	
IEBCOPY	A	
IEHMOVE	A	
DFSORT	A	6.0
TAPEPRT	A	
TAPEXRAY	A	
TCOPY	A	
UTCS FORTRAN UTILITIES	B	

VM/CMS SOFTWARE

VM/CMS Package/ Compiler	Support Level	Version
Communications Packages		
FTS	A	
Kermit	A	
MICROLASER	A	
Graphics Packages		
SAS/GRAPH	A	82.3; 5.08
PLOTBASIC(FORTRAN)	C	
Languages		
ASSEMBLER(F)	C	
Concurrent Euclid	C	1.9
FORTUTILS	A	2.0
PL/I CHECKOUT COMPILER	B	1.3.0
PL/I OPT COMPILER	B	1.4.0; 1.5.1
REXX	A	
SNOBOL 4	C	3.5
Turing	C	
VS FORTRAN	A	1.4.1
VS PASCAL	C	2.1; 2.2
Waterloo C	C	1.2
WATFIV	C	V2L0
WATFOR-77	A	1.3
Numerical Packages		
IMSL	A	9.2
Statistical Packages		
BMDP	A	Level 83
IMSL	A	9.2
Minitab	B	82.1; 5.1
SAS	A	82.3; 5.08
SPSSX	A	2.1
Text-Processing Packages		
SCRIBE	A	4(1400)-1
Waterloo SCRIPT	B	85.1
XEDIT	A	
8700 Pseudotypesetting	A	n/a
MICROLASER	A	
Utilities		
FORTUTILS	A	2.2
TESTFORT	A	2.2
TPRINT	C	

Software List continued

UNIX SOFTWARE

UNIX Package/ Compiler	Support Level	Version
Communications Packages		
kermit	B	4C(058)
macget/macput	C	
xmodem	C	
ftp, rsh, rlogin, telnet, rcp (Access via TCP/IP to most of the networked machines on all three campuses)	B	
rn/Pnews	B	
mail, mh, Mail		
rje	B	
Languages		
CC	B	Release E
cc	A	BSD std.
f77	C	BSD std.
efl	C	BSD std.
ratfor	C	BSD std.
ttc	C	
iconc	C	V5
liszt	C	8.36 Opus 79
pc	C	BSD std.
yacc	C	
awk	C	
adb,dbx	C	BSD std.
Text Processing Facilities		
ed	A	
vi	C	
jove	C	
spell	C	
diction/explain	C	
eqn	A	
tbl	A	
pic	C	
troff	A	
nroff	A	
scribe	A	4(1400)-1
Utilities		
crypt	A	BSD std.
compress	C	BSD std.
csh	B	BSD std.
diff	A	BSD std.
grep	A	BSD std.
ipr	B	
learn	C	BSD std.
patch	C	
sed	A	BSD std.
sort	A	BSD std.
sh	A	BSD std.
tar	A	BSD std.
uniq	A	BSD std.

MICROCOMPUTER SOFTWARE

The following are microcomputer software packages for which UTCS can provide either support or some information. As with mainframe products, micro packages receive full support (Class A), limited support (Class B), or no active support (Class C). The specific criteria differ from those for mainframe classes and are outlined in the Academic's Guide to Microcomputer Systems.

Package/ Compiler	Support Level	Version
Communications Packages		
Kermit (MS-DOS)	A	2.27d
Kermit (APPLE II)	A	
Kermit (CP/M)	C	
Kermit Macintosh	B	
PC TALK3	B	
PC PLOT III	A	
ProComm	A	2.3
MacTerminal	C	
WYLBUR/PC	C	
Database Managers		
AskSam	C	2.2
Clipper	B	
DATAEASE	B	
dBASE II (CP/M)	B	
dBASE II (MS-DOS)	C	
dBASE III	A	1.1
dBIIICompiler	B	1.1
FoxBASE	C	2.14u
Notebook II	B	2.03
REFLEX	B	
ViewFinder III	B	
ZyINDEX	B	
Graphics Packages		
DR HALO	C	
Microsoft CHART (Macintosh)	C	
MacPaint	B	
35mm Express	B	
Languages		
BASIC	A	
Microsoft FORTRAN	C	
TURBO Pascal	B	
WATFOR-77	A	
Operating Systems, Utilities		
APPLE Turnover	A	
CP/M	B	
FASTBACK	B	
PC-DOS	A	
Sidekick	B	
SuperKey	C	
TURBO Lightning	C	
XenoDisk	A	1.41
Spreadsheet Packages		
APPLEWORKS	C	
Lotus 1-2-3	B	
Multiplan (Macintosh)	C	
Statistical Packages		
MINITAB	C	
SAS/PC	A	6.01
SPSS/PC +	A	
Word-Processing Packages		
Gutenberg Senior	C	
FinalWord II	A	2.0
MacWrite	C	
Microsoft Word	B	2.0
Nota Bene	B	
T^3	B	
Volkswriter Scientific	C	
WordPerfect	A	4.1
WordStar	B	

Cumulative Index for 1986

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